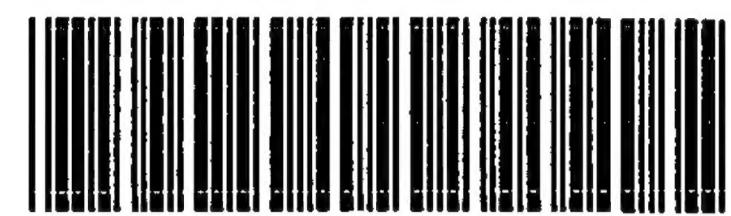


## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 10/565,126  
Source: IFWP  
Date Processed by STIC: 1/27/06

***ENTERED***



IFWP

RAW SEQUENCE LISTING DATE: 01/27/2006  
 PATENT APPLICATION: US/10/565,126 TIME: 09:59:46

Input Set : A:\002441.00187 sequence listing.TXT  
 Output Set: N:\CRF4\01272006\J565126.raw

4 <110> APPLICANT: Chiron Corporation  
 6 <120> TITLE OF INVENTION: Immunogenic Compositions for Streptococcus  
 pyogenes  
 8 <130> FILE REFERENCE: PP020663.0004 (002441.00187)  
 C--> 10 <140> CURRENT APPLICATION NUMBER: US/10/565,126  
 C--> 11 <141> CURRENT FILING DATE: 2006-01-19  
 13 <150> PRIOR APPLICATION NUMBER: US 60/491822  
 14 <151> PRIOR FILING DATE: 2003-07-31  
 16 <150> PRIOR APPLICATION NUMBER: US 60/541565  
 17 <151> PRIOR FILING DATE: 2004-02-03  
 19 <160> NUMBER OF SEQ ID NOS: 135  
 21 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 23 <210> SEQ ID NO: 1  
 24 <211> LENGTH: 873  
 25 <212> TYPE: PRT  
 26 <213> ORGANISM: Streptococcus pyogenes  
 28 <400> SEQUENCE: 1  
 29 Met Asp Leu Glu Gln Thr Lys Pro Asn Gln Val Lys Gln Lys Ile Ala  
 30 1 5 10 15  
 31 Leu Thr Ser Thr Ile Ala Leu Leu Ser Ala Ser Val Gly Val Ser His  
 32 20 25 30  
 33 Gln Val Lys Ala Asp Asp Arg Ala Ser Gly Glu Thr Lys Ala Ser Asn  
 34 35 40 45  
 35 Thr His Asp Asp Ser Leu Pro Lys Pro Glu Thr Ile Gln Glu Ala Lys  
 36 50 55 60  
 37 Ala Thr Ile Asp Ala Val Glu Lys Thr Leu Ser Gln Gln Lys Ala Glu  
 38 65 70 75 80  
 39 Leu Thr Glu Leu Ala Thr Ala Leu Thr Lys Thr Thr Ala Glu Ile Asn  
 40 85 90 95  
 41 His Leu Lys Glu Gln Gln Asp Asn Glu Gln Lys Ala Leu Thr Ser Ala  
 42 100 105 110  
 43 Gln Glu Ile Tyr Thr Asn Thr Leu Ala Ser Ser Glu Glu Thr Leu Leu  
 44 115 120 125  
 45 Ala Gln Gly Ala Glu His Gln Arg Glu Leu Thr Ala Thr Glu Thr Glu  
 46 130 135 140  
 47 Leu His Asn Ala Gln Ala Asp Gln His Ser Lys Glu Thr Ala Leu Ser  
 48 145 150 155 160  
 49 Glu Gln Lys Ala Ser Ile Ser Ala Glu Thr Thr Arg Ala Gln Asp Leu  
 50 165 170 175  
 51 Val Glu Gln Val Lys Thr Ser Glu Gln Asn Ile Ala Lys Leu Asn Ala  
 52 180 185 190  
 53 Met Ile Ser Asn Pro Asp Ala Ile Thr Lys Ala Ala Gln Thr Ala Asn  
 54 195 200 205  
 55 Asp Asn Thr Lys Ala Leu Ser Ser Glu Leu Glu Lys Ala Lys Ala Asp

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/565,126

DATE: 01/27/2006  
TIME: 09:59:46

Input Set : A:\002441.00187 sequence listing.TXT  
Output Set: N:\CRF4\01272006\J565126.raw

56	210	215	220													
57	Leu	Glu	Asn	Gln	Lys	Ala	Lys	Val	Lys	Lys	Gln	Leu	Thr	Glu	Glu	Leu
58	225				230				235				240			
59	Ala	Ala	Gln	Lys	Ala	Ala	Leu	Ala	Glu	Lys	Glu	Ala	Glu	Leu	Ser	Arg
60					245				250				255			
61	Leu	Lys	Ser	Ser	Ala	Pro	Ser	Thr	Gln	Asp	Ser	Ile	Val	Gly	Asn	Asn
62					260				265				270			
63	Thr	Met	Lys	Ala	Pro	Gln	Gly	Tyr	Pro	Leu	Glu	Glu	Leu	Lys	Lys	Leu
64		275				280			285							
65	Glu	Ala	Ser	Gly	Tyr	Ile	Gly	Ser	Ala	Ser	Tyr	Asn	Asn	Tyr	Tyr	Lys
66		290				295			300							
67	Glu	His	Ala	Asp	Gln	Ile	Ile	Ala	Lys	Ala	Ser	Pro	Gly	Asn	Gln	Leu
68	305				310				315				320			
69	Asn	Gln	Tyr	Gln	Asp	Ile	Pro	Ala	Asp	Arg	Asn	Arg	Phe	Val	Asp	Pro
70						325			330				335			
71	Asp	Asn	Leu	Thr	Pro	Glu	Val	Gln	Asn	Glu	Leu	Ala	Gln	Phe	Ala	Ala
72						340			345				350			
73	His	Met	Ile	Asn	Ser	Val	Arg	Arg	Gln	Leu	Gly	Leu	Pro	Pro	Val	Thr
74		355				360			365							
75	Val	Thr	Ala	Gly	Ser	Gln	Glu	Phe	Ala	Arg	Leu	Leu	Ser	Thr	Ser	Tyr
76		370				375			380							
77	Lys	Lys	Thr	His	Gly	Asn	Thr	Arg	Pro	Ser	Phe	Val	Tyr	Gly	Gln	Pro
78		385				390			395				400			
79	Gly	Val	Ser	Gly	His	Tyr	Gly	Val	Gly	Pro	His	Asp	Lys	Thr	Ile	Ile
80						405			410				415			
81	Glu	Asp	Ser	Ala	Gly	Ala	Ser	Gly	Leu	Ile	Arg	Asn	Asp	Asp	Asn	Met
82						420			425				430			
83	Tyr	Glu	Asn	Ile	Gly	Ala	Phe	Asn	Asp	Val	His	Thr	Val	Asn	Gly	Ile
84						435			440				445			
85	Lys	Arg	Gly	Ile	Tyr	Asp	Ser	Ile	Lys	Tyr	Met	Leu	Phe	Thr	Asp	His
86						450			455				460			
87	Leu	His	Gly	Asn	Thr	Tyr	Gly	His	Ala	Ile	Asn	Phe	Leu	Arg	Val	Asp
88		465				470			475				480			
89	Lys	His	Asn	Pro	Asn	Ala	Pro	Val	Tyr	Leu	Gly	Phe	Ser	Thr	Ser	Asn
90						485			490				495			
91	Val	Gly	Ser	Leu	Asn	Glu	His	Phe	Val	Met	Phe	Pro	Glu	Ser	Asn	Ile
92						500			505				510			
93	Ala	Asn	His	Gln	Arg	Phe	Asn	Lys	Thr	Pro	Ile	Lys	Ala	Val	Gly	Ser
94						515			520				525			
95	Thr	Lys	Asp	Tyr	Ala	Gln	Arg	Val	Gly	Thr	Val	Ser	Asp	Thr	Ile	Ala
96						530			535				540			
97	Ala	Ile	Lys	Gly	Lys	Val	Ser	Ser	Leu	Glu	Asn	Arg	Leu	Ser	Ala	Ile
98		545				550			555				560			
99	His	Gln	Glu	Ala	Asp	Ile	Met	Ala	Ala	Gln	Ala	Lys	Val	Ser	Gln	Leu
100						565			570				575			
101	Gln	Gly	Lys	Leu	Ala	Ser	Thr	Leu	Lys	Gln	Ser	Asp	Ser	Leu	Asn	Leu
102						580			585				590			
103	Gln	Val	Arg	Gln	Leu	Asn	Asp	Thr	Lys	Gly	Ser	Leu	Arg	Thr	Glu	Leu
104						595			600				605			

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/565,126

DATE: 01/27/2006

TIME: 09:59:46

Input Set : A:\002441.00187 sequence listing.TXT  
 Output Set: N:\CRF4\01272006\J565126.raw

105 Leu Ala Ala Lys Ala Lys Gln Ala Gln Leu Glu Ala Thr Arg Asp Gln  
 106 610 615 620  
 107 Ser Leu Ala Lys Leu Ala Ser Leu Lys Ala Ala Leu His Gln Thr Glu  
 108 625 630 635 640  
 109 Ala Leu Ala Glu Gln Ala Ala Ala Arg Val Thr Ala Leu Val Ala Lys  
 110 645 650 655  
 111 Lys Ala His Leu Gln Tyr Leu Arg Asp Phe Lys Leu Asn Pro Asn Arg  
 112 660 665 670  
 113 Leu Gln Val Ile Arg Glu Arg Ile Asp Asn Thr Lys Gln Asp Leu Ala  
 114 675 680 685  
 115 Lys Thr Thr Ser Ser Leu Leu Asn Ala Gln Glu Ala Leu Ala Ala Leu  
 116 690 695 700  
 117 Gln Ala Lys Gln Ser Ser Leu Glu Ala Thr Ile Ala Thr Thr Glu His  
 118 705 710 715 720  
 119 Gln Leu Thr Leu Leu Lys Thr Leu Ala Asn Glu Lys Glu Tyr Arg His  
 120 725 730 735  
 121 Leu Asp Glu Asp Ile Ala Thr Val Pro Asp Leu Gln Val Ala Pro Pro  
 122 740 745 750  
 123 Leu Thr Gly Val Lys Pro Leu Ser Tyr Ser Lys Ile Asp Thr Thr Pro  
 124 755 760 765  
 125 Leu Val Gln Glu Met Val Lys Glu Thr Lys Gln Leu Leu Glu Ala Ser  
 126 770 775 780  
 127 Ala Arg Leu Ala Ala Glu Asn Thr Ser Leu Val Ala Glu Ala Leu Val  
 128 785 790 795 800  
 129 Gly Gln Thr Ser Glu Met Val Ala Ser Asn Ala Ile Val Ser Lys Ile  
 130 805 810 815  
 131 Thr Ser Ser Ile Thr Gln Pro Ser Ser Lys Thr Ser Tyr Gly Ser Gly  
 132 820 825 830  
 133 Ser Ser Thr Thr Ser Asn Leu Ile Ser Asp Val Asp Glu Ser Thr Gln  
 134 835 840 845  
 135 Arg Ala Leu Lys Ala Gly Val Val Met Leu Ala Ala Val Gly Leu Thr  
 136 850 855 860  
 137 Gly Phe Arg Phe Arg Lys Glu Ser Lys  
 138 865 870  
 140 <210> SEQ ID NO: 2  
 141 <211> LENGTH: 2648  
 142 <212> TYPE: PRT  
 143 <213> ORGANISM: Streptococcus pyogenes  
 145 <400> SEQUENCE: 2  
 146 Ala Thr Gly Gly Ala Cys Thr Thr Ala Gly Ala Ala Cys Ala Ala Ala  
 147 1 5 10 15  
 148 Cys Gly Ala Ala Gly Cys Cys Ala Ala Ala Cys Cys Ala Ala Gly Thr  
 149 20 25 30  
 150 Thr Ala Ala Gly Cys Ala Gly Ala Ala Ala Ala Thr Thr Gly Cys Thr  
 151 35 40 45  
 152 Thr Thr Ala Ala Cys Cys Thr Cys Ala Ala Cys Ala Ala Thr Thr Gly  
 153 50 55 60  
 154 Cys Thr Thr Ala Thr Thr Gly Ala Gly Thr Gly Cys Cys Ala Gly  
 155 65 70 75 80

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/565,126

DATE: 01/27/2006

TIME: 09:59:46

Input Set : A:\002441.00187 sequence listing.TXT  
 Output Set: N:\CRF4\01272006\J565126.raw

156 Thr Gly Thr Ala Gly Gly Cys Gly Thr Ala Thr Cys Thr Cys Ala Cys  
 157 85 90 95  
 158 Cys Ala Ala Gly Thr Cys Ala Ala Ala Gly Cys Ala Gly Ala Thr Gly  
 159 100 105 110  
 160 Ala Thr Ala Gly Ala Gly Cys Cys Thr Cys Ala Gly Gly Ala Gly Ala  
 161 115 120 125  
 162 Ala Ala Cys Gly Ala Ala Gly Gly Cys Gly Ala Gly Thr Ala Ala Thr  
 163 130 135 140  
 164 Ala Cys Thr Cys Ala Cys Gly Ala Cys Gly Ala Thr Ala Gly Thr Thr  
 165 145 150 155 160  
 166 Thr Ala Cys Cys Ala Ala Ala Cys Cys Ala Gly Ala Ala Ala Cys  
 167 165 170 175  
 168 Ala Ala Thr Thr Cys Ala Ala Gly Ala Gly Gly Cys Ala Ala Ala Gly  
 169 180 185 190  
 170 Gly Cys Ala Ala Cys Thr Ala Thr Thr Gly Ala Thr Gly Cys Ala Gly  
 171 195 200 205  
 172 Thr Thr Gly Ala Ala Ala Ala Ala Cys Thr Cys Thr Cys Ala Gly  
 173 210 215 220  
 174 Thr Cys Ala Ala Cys Ala Ala Ala Ala Gly Cys Ala Gly Ala Ala  
 175 225 230 235 240  
 176 Cys Thr Gly Ala Cys Ala Gly Ala Gly Cys Thr Thr Gly Cys Thr Ala  
 177 245 250 255  
 178 Cys Cys Gly Cys Thr Cys Thr Gly Ala Cys Ala Ala Ala Ala Cys  
 179 260 265 270  
 180 Thr Ala Cys Thr Gly Cys Thr Gly Ala Ala Ala Thr Cys Ala Ala Cys  
 181 275 280 285  
 182 Cys Ala Cys Thr Thr Ala Ala Ala Gly Ala Gly Cys Ala Gly Cys  
 183 290 295 300  
 184 Ala Ala Gly Ala Thr Ala Ala Thr Gly Ala Ala Cys Ala Ala Ala  
 185 305 310 315 320  
 186 Ala Gly Cys Thr Thr Ala Ala Cys Cys Thr Cys Thr Gly Cys Ala  
 187 325 330 335  
 188 Cys Ala Ala Gly Ala Ala Ala Thr Thr Ala Cys Ala Cys Thr Ala  
 189 340 345 350  
 190 Ala Thr Ala Cys Thr Cys Thr Gly Cys Ala Ala Gly Thr Ala Gly  
 191 355 360 365  
 192 Thr Gly Ala Gly Gly Ala Gly Ala Cys Gly Cys Thr Ala Thr Thr Ala  
 193 370 375 380  
 194 Gly Cys Cys Cys Ala Ala Gly Gly Ala Gly Cys Cys Gly Ala Ala Cys  
 195 385 390 395 400  
 196 Ala Thr Cys Ala Ala Ala Gly Ala Gly Thr Thr Ala Ala Cys  
 197 405 410 415  
 198 Ala Gly Cys Thr Ala Cys Thr Gly Ala Ala Ala Cys Ala Gly Ala Gly  
 199 420 425 430  
 200 Cys Thr Thr Cys Ala Thr Ala Ala Thr Gly Cys Thr Cys Ala Ala Gly  
 201 435 440 445  
 202 Cys Ala Gly Ala Thr Cys Ala Ala Cys Ala Thr Thr Cys Ala Ala Ala  
 203 450 455 460  
 204 Ala Gly Ala Gly Ala Cys Thr Gly Cys Ala Thr Thr Gly Thr Cys Ala

**RAW SEQUENCE LISTING**  
 PATENT APPLICATION: US/10/565,126

DATE: 01/27/2006  
 TIME: 09:59:46

Input Set : A:\002441.00187 sequence listing.TXT  
 Output Set: N:\CRF4\01272006\J565126.raw

205	465	470	475	480
206	Gly Ala Ala Cys Ala Ala Ala Ala Gly Cys Thr Ala Gly Cys Ala			
207	485	490	495	
208	Thr Thr Thr Cys Ala Gly Cys Ala Gly Ala Ala Ala Cys Thr Ala Cys			
209	500	505	510	
210	Thr Cys Gly Ala Gly Cys Thr Cys Ala Ala Gly Ala Thr Thr Thr Ala			
211	515	520	525	
212	Gly Thr Gly Gly Ala Ala Cys Ala Ala Gly Thr Cys Ala Ala Ala Ala			
213	530	535	540	
214	Cys Gly Thr Cys Thr Gly Ala Ala Cys Ala Ala Ala Ala Thr Ala Thr			
215	545	550	555	560
216	Thr Gly Cys Thr Ala Ala Gly Cys Thr Cys Ala Ala Thr Gly Cys Thr			
217	565	570	575	
218	Ala Thr Gly Ala Thr Thr Ala Gly Cys Ala Ala Thr Cys Cys Thr Gly			
219	580	585	590	
220	Ala Thr Gly Cys Thr Ala Thr Cys Ala Cys Thr Ala Ala Gly Cys			
221	595	600	605	
222	Ala Gly Cys Thr Cys Ala Ala Cys Gly Gly Cys Thr Ala Ala Thr			
223	610	615	620	
224	Gly Ala Thr Ala Ala Thr Ala Cys Ala Ala Ala Gly Cys Ala Thr			
225	625	630	635	640
226	Thr Ala Ala Gly Cys Thr Cys Ala Gly Ala Ala Thr Thr Gly Gly Ala			
227	645	650	655	
228	Gly Ala Ala Gly Gly Cys Thr Ala Ala Ala Gly Cys Thr Gly Ala Cys			
229	660	665	670	
230	Thr Thr Ala Gly Ala Ala Ala Ala Thr Cys Ala Ala Ala Ala Gly			
231	675	680	685	
232	Cys Thr Ala Ala Ala Gly Thr Thr Ala Ala Ala Ala Gly Cys Ala			
233	690	695	700	
234	Ala Thr Thr Gly Ala Cys Thr Gly Ala Ala Gly Ala Gly Thr Thr Gly			
235	705	710	715	720
236	Gly Cys Ala Gly Cys Thr Cys Ala Gly Ala Ala Ala Gly Cys Thr Gly			
237	725	730	735	
238	Cys Thr Cys Thr Ala Gly Cys Ala Gly Ala Ala Ala Ala Gly Ala			
239	740	745	750	
240	Gly Gly Cys Ala Gly Ala Ala Cys Thr Thr Ala Gly Thr Cys Gly Thr			
241	755	760	765	
242	Cys Thr Thr Ala Ala Ala Thr Cys Cys Thr Cys Ala Gly Cys Thr Cys			
243	770	775	780	
244	Cys Gly Thr Cys Thr Ala Cys Thr Cys Ala Ala Gly Ala Thr Ala Gly			
245	785	790	795	800
246	Cys Ala Thr Thr Gly Thr Gly Gly Thr Ala Ala Thr Ala Ala Thr			
247	805	810	815	
248	Ala Cys Cys Ala Thr Gly Ala Ala Ala Gly Cys Ala Cys Cys Gly Cys			
249	820	825	830	
250	Ala Ala Gly Gly Cys Thr Ala Thr Cys Cys Thr Cys Thr Thr Gly Ala			
251	835	840	845	
252	Ala Gly Ala Ala Cys Thr Thr Ala Ala Ala Ala Ala Thr Thr Ala			
253	850	855	860	

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10/565,126

DATE: 01/27/2006

TIME: 09:59:47

Input Set : A:\002441.00187 sequence listing.TXT  
Output Set: N:\CRF4\01272006\J565126.raw

L:10 M:270 C: Current Application Number differs, Replaced Current Application Number

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date